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Washington State Department of Transportation

WASHINGTON STATE HYDROLOGY BY THE RATIONAL FORMULA

SR	PROJECT	
MADE BY		DATE

EQUATIONS

$$Tc = \frac{(\triangle L)^{1.5}}{K(\triangle H)^{0.50}} = \frac{\triangle L}{K(S)^{0.50}}$$

$$I = \frac{m}{(Tc)^{n}}$$

$$Q = (\Sigma CA)\ I$$

LEGEND

Q = Flood discharge (cfs)

$\triangle L$ = Length of drainage basin (ft)

$\triangle H$ = Height of drainage basin (ft)

K = Ground cover coef. (ft/min)

Tc = Time of concentration (min)

m & n = Rainfall coefficients

C = Runoff coefficient

A = Drainage area (acres)

ΣCA = Total effective impervious area (Acres)

S = Average Slope (ft/ft)

DESCRIPTION OF AREA	MRI (yrs.)	$\triangle L$ (ft)	$\triangle H$ (ft)	S (ft/ft)	K (ft/min)	Tc (min)	RAINFALL COEF m	RAINFALL COEF n	I (in/hr)	C	A (Acres)	ΣCA (Acres)	Q (cfs)

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